

WHAT IS CLAIMED IS:

1. A camera operating apparatus for operating at least one camera unit at first and second operation speeds and at an operation direction which are to be changed by an operator, comprising:
 - a retainer having an operation surface;
 - a joystick mounted on said retainer and having a center axis and a center point located on said center axis, said joystick being pivotable around said center point of said joystick at a variable inclination angle between said center axis of said joystick and said operation surface of said retainer to input a first speed signal indicative of said inclination angle varied in response to said first operation speed to said camera unit;
 - a plurality of keys each operatively arranged on said retainer to perform a key-pushed action and a key-released action, each of said keys being operative to input a key signal indicative of said key-pushed action, said keys including one specified key selected for said second operation speed to said camera unit desired by said operator; and
 - output signal generating means for generating a second speed signal indicative of said second operation speed to said camera unit based on said first speed signal from said joystick and said key signal from said specified key, said output signal generating means being operative to output said second speed signal to said camera unit to ensure said second operation speed to said camera unit desired by said operator.
2. A camera operating apparatus as set forth in claim 1, in which said second speed signal generated by said output signal generating means indicates an operation speed to said camera unit which is equal to an operation speed to said camera unit decided by said key signal inputted from said specified key.
3. A camera operating apparatus for operating at least one camera unit at first and second operation directions and at an operation speed which are to be changed by an operator, comprising:
 - a retainer having an operation surface;
 - a joystick mounted on said retainer and having a center axis and a center point located on said center axis, said joystick being pivotable around said center point of said joystick at a variable inclination direction with respect to said operation surface of said retainer to input a first direction signal indicative of said inclination

direction varied in response to said first operation direction to said camera unit;

a plurality of keys each operatively arranged on said retainer to perform a key-pushed action and a key-released action, each of said keys being operative to input a key signal indicative of said key-pushed action, said keys including one specified key selected for said second operation direction to said camera unit desired by said operator; and

output signal generating means for generating a second direction signal indicative of said second operation direction to said camera unit based on said first direction signal from said joystick and said key signal from said specified key, said output signal generating means being operative to output said second direction signal to said camera unit to ensure said second operation direction to said camera unit desired by said operator.

4. A camera operating apparatus as set forth in claim 3, in which said second direction signal generated by said output signal generating means indicates an operation direction to said camera unit which is opposite to an operation direction to said camera unit decided by said first direction signal inputted from said joystick with respect to said center point of said joystick.

5. A camera operating apparatus as set forth in any one of claims 1 to 4, in which said keys include a plurality of numerical keys which are selectively operated to input said key signals.

6. A camera operating apparatus for operating at least one camera unit at first and second operation speeds and at first and second operation directions which are to be changed by an operator, comprising:

a retainer having an operation surface;

a joystick mounted on said retainer and having a center axis and a center point located on said center axis, said joystick being pivotable around said center point of said joystick at a variable inclination angle between said center axis of said joystick and said operation surface of said retainer to input a first speed signal indicative of said inclination angle varied in response to said first operation speed to said camera unit and at a variable inclination direction with respect to said operation surface of said retainer to input a first direction signal indicative of said inclination direction varied in response to said first operation direction to said camera unit, said joystick having a first terminal having said first speed signal outputted therethrough and a second terminal having said first direction signal outputted therethrough;

a plurality of keys each operatively arranged on said retainer to perform a key-pushed action and a key-released action, each of said keys being operative to input a key signal indicative of said key-pushed action, said keys including one specified key selected for said second operation speed and said second operation direction to said camera unit desired by said operator, said keys having first and second terminals having said key signal outputted therethrough; and

output signal generating means for generating and outputting a second speed signal indicative of said second operation speed to said camera unit and a second direction signal indicative of said second operation direction to said camera unit, said output signal generating means including a second speed signal generating unit for generating said second speed signal based on said first speed signal from said joystick and said key signal from said specified key and a second direction signal generating unit for generating said second direction signal based on said first direction signal from said joystick and said key signal from said specified key, said second speed signal generating unit being operative to output said second speed signal to said camera unit to ensure said second operation speed to said camera unit desired by said operator, said second speed signal generating unit having a first terminal having said first speed signal inputted therethrough, a second terminal having said key signal inputted therethrough and a third terminal having said second speed signal outputted therethrough, said second direction signal generating unit being operative to output said second direction signal to said camera unit to ensure said second operation direction to said camera unit desired by said operator, said second direction signal generating unit having a first terminal having said first direction signal inputted therethrough, a second terminal having said key signal inputted therethrough and a third terminal having said second direction signal outputted therethrough.

7. A camera operating apparatus as set forth in claim 6, in which said second speed signal generated by said second speed signal generating unit of said output signal generating means indicates an operation speed to said camera unit which is equal to an operation speed to said camera unit decided by said key signal inputted from said specified key.

8. A camera operating apparatus as set forth in claim 6, in which said second direction signal generated by said second direction signal generating unit of said output signal generating means indicates an operation direction to said camera unit which is opposite to an operation direction to said camera unit decided by said first direction signal inputted from said joystick with respect to said center point of said

joystick.

9. A camera operating apparatus as set forth in any one of claims 6 to 8, in which said keys include a plurality of numerical keys which are selectively operated to input said key signals.

10. A camera operating apparatus for operating at least one camera unit at first and second operation speeds and at first and second operation directions which are to be changed by an operator, comprising:

10 a retainer having an operation surface;

a joystick mounted on said retainer and having a center axis and a center point located on said center axis, said joystick being pivotable around said center point of said joystick at a variable inclination angle between said center axis of said joystick and said operation surface of said retainer to input a first speed signal indicative of said inclination angle varied in response to said first operation speed to said camera unit and at a variable inclination direction with respect to said operation surface of said retainer to input a first direction signal indicative of said inclination direction varied in response to said first operation direction to said camera unit, said first speed signal consisting of first and second components, said first direction signal consisting of first and second components, said joystick having a first terminal having said first component of said first speed signal and first component of said first direction signal outputted therethrough and a second terminal having said second component of said first speed signal and said second component of said first direction signal outputted therethrough;

25 a plurality of keys each operatively arranged on said retainer to perform a key-pushed action and a key-released action, each of said keys being operative to input a key signal indicative of said key-pushed action, said keys including one specified key selected for said second operation speed and said second operation direction to said camera unit desired by said operator, said keys having first, second and third terminals having said key signal outputted therethrough; and

30 output signal generating means for generating and outputting a second speed signal indicative of said second operation speed to said camera unit and a second direction signal indicative of said second operation direction to said camera unit, said output signal generating means including a second speed signal generating unit for generating said second speed signal based on said first and second components of said first speed signal from said joystick and said key signal from said specified key and a second direction signal generating unit for generating said second direction signal

based on said first and second components of said first direction signal from said joystick and said key signal from said specified key,

5 said second speed signal generating unit being operative to output said second speed signal to said camera unit to ensure said second operation speed to said camera unit desired by said operator, said second speed signal generating unit having a key signal processing unit for processing said key signal from said specified key to output said second speed signal, a speed signal processing unit for processing and synthesizing said first and second components of said first speed signal from said joystick to output said first speed signal, a first buffer circuit being operative to
10 assume two operation states consisting of a first operation state to allow said second speed signal to pass therethrough and a second operation state not to allow said second speed signal to pass therethrough, a second buffer circuit being operative to assume two operation states consisting of a first operation state to allow said first speed signal to pass therethrough and a second operation state not to allow said first
15 speed signal to pass therethrough and an OR circuit being operative to assume two operation states consisting of a first operation state to allow said second speed signal to pass therethrough and a second operation state to allow said first speed signal to pass therethrough to be outputted as a second speed signal,

 said key signal processing unit having first and second terminals having said
20 key signal inputted therethrough and a third terminal having said second speed signal outputted therethrough, said speed signal processing unit having a first terminal having said first component of said first speed signal inputted therethrough, a second terminal having said second component of said first speed signal inputted therethrough and a third terminal having said first speed signal outputted therethrough,
25 said first buffer circuit having first, second and third terminals, said first and second terminals of said first buffer circuit being operative to allow said second speed signal from said key signal processing unit to pass therethrough when said third terminal of said first buffer circuit is operative to receive said key signal from said specified key and operative not to allow said second speed signal from said key signal processing
30 unit to pass therethrough when said third terminal of said first buffer circuit is operative not to receive said key signal from said specified key, said second buffer circuit having first, second and third terminals, said first and second terminals of said second buffer circuit being operative to allow said first speed signal from said speed signal processing unit to pass therethrough when said third terminal of said second
35 buffer circuit is operative not to receive said key signal from said specified key and operative not to allow said first speed signal from said speed signal processing unit to pass therethrough when said third terminal of said first buffer circuit is operative to

receive said key signal from said specified key, said OR circuit having first, second
 and third terminals, said first and third terminals of said OR circuit being operative to
 allow said second speed signal from said first buffer circuit to pass therethrough when
 said first terminal of said OR circuit is operative to receive said second speed signal
 5 from said first buffer circuit, said second and third terminals of said OR circuit being
 operative to allow said first speed signal from said second buffer circuit to pass
 therethrough to be outputted as a second speed signal when said second terminal of
 said OR circuit is operative to receive said first speed signal from said second buffer
 circuit,

10 said second direction signal generating unit being operative to output said
 second direction signal to said camera unit to ensure said second operation direction
 to said camera unit desired by said operator, said second direction signal generating
 unit having a direction signal processing unit for processing and synthesizing said first
 and second components of said first direction signal from said joystick to output said
 15 first and second direction signals, a first buffer circuit being operative to assume two
 operation states consisting of a first operation state to allow said first direction signal
 to pass therethrough and a second operation state not to allow said first direction
 signal to pass therethrough, a second buffer circuit being operative to assume two
 operation states consisting of a first operation state to allow said second direction
 20 signal to pass therethrough and a second operation state not to allow said second
 direction signal to pass therethrough and an OR circuit being operative to assume two
 operation states consisting of a first operation state to allow said first direction signal
 to pass therethrough to be outputted as a second direction signal and a second
 operation state to allow said second direction signal to pass therethrough,

25 said direction signal processing unit having a first terminal having said first
 component of said first direction signal inputted therethrough, a second terminal
 having said second component of said first direction signal inputted therethrough, a
 third terminal having said first direction signal outputted therethrough and a fourth
 terminal having said second direction signal outputted therethrough, said first buffer
 30 circuit having first, second and third terminals, said first and second terminals of said
 first buffer circuit being operative to allow said first direction signal from said
 direction signal processing unit to pass therethrough when said third terminal of said
 first buffer circuit is operative not to receive said key signal from said specified key
 and operative not to allow said first direction signal from said direction signal
 35 processing unit to pass therethrough when said third terminal of said first buffer
 circuit is operative to receive said key signal from said specified key, said second
 buffer circuit having first, second and third terminals, said first and second terminals

of said second buffer circuit being operative to allow said second direction signal from said direction signal processing unit to pass therethrough when said third terminal of said second buffer circuit is operative to receive said key signal from said specified key and operative not to allow said second direction signal from said direction signal processing unit to pass therethrough when said third terminal of said first buffer circuit is operative not to receive said key signal from said specified key, said OR circuit having first, second and third terminals, said first and third terminals of said OR circuit being operative to allow said first direction signal from said first buffer circuit to pass therethrough to be outputted as a second direction signal when said first terminal of said OR circuit is operative to receive said first direction signal from said first buffer circuit, said second and third terminals of said OR circuit being operative to allow said second direction signal from said second buffer circuit to pass therethrough when said second terminal of said OR circuit is operative to receive said second direction signal from said second buffer circuit.

11. A camera operating apparatus as set forth in claim 10, in which said second speed signal generated by said key signal processing unit of said second speed signal generating unit indicates an operation speed to said camera unit which is equal to an operation speed to said camera unit decided by said key signal inputted from said specified key.

12. A camera operating apparatus as set forth in claim 10, in which said second direction signal generated by said direction signal processing unit of said second direction signal generating unit indicates an operation direction to said camera unit which is opposite to an operation direction to said camera unit decided by said first direction signal inputted from said joystick with respect to said center point of said joystick.

13. A camera operating apparatus as set forth in any one of claims 10 to 12, in which said keys include a plurality of numerical keys which are selectively operated to input said key signals.